

Towards Sustainable Cassava Agro-Processing Systems and Effluent Management Techniques in Southwest Nigeria: Challenges and Benefits

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Growing opportunities in cassava-root value addition through processing have resulted in increased number of small and medium scale processing factories which generate huge volumes of solid and liquid wastes that have detrimental effects on the environment. This study examines fresh water consumption patterns, effluent generation and wastewater disposal techniques among cassava-root processors in southwest Nigeria with the aim of highlighting their impact on the environment. Structured questionnaires were administered randomly to obtain data from 60 cassava processing centres scattered across the study area. This study observed that wet fufu paste processing centres were dominant (81%) and generates the highest volume of organic wastewater with high BOD (1750-1872 mg/l), COD (24,000-56,000 mg/l), HCN (0.26-0.64 mg/l) and low pH (3.73-3.81). Also, inorganic constituents like sodium, calcium, magnesium, phosphate and heavy metals were found in relatively low quantities in the effluents. About 3.586 m³ of fresh water is required to process one tonne of cassava roots with 91.5% of this disposed as wastewater. Of the methods of wastewater disposal examined in this study, land surface was 51.5%, while open drainage and nearby stream were 45.9% and 2.6% respectively. Land degradation, surface and ground water pollution, and high environmental risks were observed in the study area investigated. Finally, some processing practices and alternative sustainable solutions that can help reduce environmental risks and the menace of poor waste management and disposal among processors were proposed.